

IN THE SPECIFICATION:

Please replace the paragraph beginning on page 1, line 15, with the following rewritten paragraph:

X --The operations of writing and playing back data in a rewritable optical disc may be repeated. This repeated process alters the ratio of storage layers for recording data into the optical disc from the initial ratio. Thus, the optical discs lose their characteristics and generate an error during recording/playback. This degradation appears as a defective area at the time of formatting, recording on or playing back from an optical storage medium. Also, defective areas of a rewritable optical disc may be caused by a scratch on its surface, particles of dirt and dust, or errors during manufacture. Therefore, in order to prevent writing into or reading out of the defective area, management of such defective areas is necessary.--

The paragraph beginning on page 4, line 14 has been amended as follows:

X2 --As defective areas are compensated utilizing the spare area, methods of assigning the spare area plays an important role in the defective area management. Typically, the spare area may be allocated in each zone or group of the data area or may be allocated in a designated portion of the data area. One method is to allocate the spare area at the top of the data area, as shown in FIG. 3. In such case, the spare area is called a primary spare area (PSA). Namely, the data area excluding the primary spare area becomes the user area.--

The paragraph beginning on page 4, line 23 has been amended as follows:

A3 -- The primary spare area, assigned in an initial formatting process, is assigned when a manufacturer produces the optical disc or when a user initially formats an empty disc. Moreover, when defect sectors are registered in the PDL according to the initial formatting or reformatting of optical disc, data cannot be recorded in those defect sectors, reducing the recording capacity. Therefore, to maintain the initial data recording capacity, a portion of the primary spare area equivalent to the defective sectors registered on the PDL slips into or becomes a part of the user area during formatting. Accordingly, the PSN of the user area to which a value of LSN=0 is assigned varies depending upon the defective sectors registered on the PDL, where LSN represent a logical sector number.--

The paragraph beginning on page 5, line 13 has been amended as follows:

A4 -- If the primary spare area becomes full by slipping or linear replacement, as shown in FIG. 4A, a new spare area may be assigned, for example near the end of the user area. Such additional spare area is called a supplementary spare area (SA-sup). The location information of the supplementary spare area is stored in a specific area such as in a SDL block (apart from the SDL) of a DMA. Particularly, the location information includes the start address (the first sector number) and the end address (the last sector number) of the assigned supplementary spare area. Thus, the size as well as the location of the supplementary spare area can be ascertained from the information.--

The paragraph beginning on page 6, line 2 has been amended as follows:

15 -- The assigned supplementary spare area may be enlarged when necessary as shown in FIG. 4B. Also, the location of the extended supplementary spare area is stored in the specific area of the DMA as in the initial assignment of the supplementary spare area. However, since a location information is already stored in the DMA, the start address of the supplementary spare area in the location information is modified. As a result, the location information of the supplementary spare area is modified each time the supplementary spare area is enlarged.--

The paragraph beginning on page 6, line 11 has been amended as follows:

16 -- Moreover, even in optical recording mediums with assigned supplementary spare area as described above, defect sectors or blocks are registered in the PDL or SDL for defect area management. Accordingly, linear replacement and slipping replacement is utilized. However, for linear replacement, the optical pick-up must be transferred to and back from the spare area to the user area in order to record data for the defect blocks registered in the SDL within the assigned replacement blocks. Repetition of this may deteriorate the system performance. As a result, the optical medium is reformatted to move the defect sectors registered in the SDL to the PDL, thereby reducing the number of linear replacements and improving the system performance.--

The paragraph beginning on page 7, line 1 has been amended as follows:

AN --The reformatting method is classified into a full formatting through certification and a simple formatting by which the SDL is transferred to the G₂-list of the PDL without certification process in order to reduce the formatting time. The P-list (primary list of defects) remains unchanged after the completion of the formatting but defective blocks of the SDL are stored as defective sectors in the G₂-list. Thus, the G₂-list may include defective sectors as well as normal sectors. Nevertheless, the normal sectors are considered as defect sectors.--

The paragraph beginning on page 7, line 19 has been amended as follows:

JSB -- In contrast, the simple formatting, shown in Fig. 5B, converts the SDL to the G₂-list without certification. Namely, the old DMA information is read and sectors in the P-list, G₁-list and G₂-list of the old PDL are converted to the P-list, G₁-list and G₂-list of a new PDL. Also, after converting the old SDL entries to sixteen PDL entries, the old SDL entries are disposed and the new PDL entries converted from the old SDL entries, are registered in the G₂-list of the new PDL.--

The paragraph beginning on page 8, line 4 has been amended as follows:

JA -- As such, upon execution of a reformatting, the supplementary spare area is considered to be non-existent by the file system because the defect information of the SDL has been moved to the PDL. However, since the location information of the supplementary spare area is stored in the SDL block of the optical disk apart from the disposed SDL, the location information of the supplemental spare area is

19 maintained without change in the SDL block. Thus, an assignment of the supplementary spare area is still considered to be existent by the driver, namely the physical driver. Because the file system recognizes whether a formatting has been executed while the driver cannot, the file system and the driver have inconsistent information regarding the supplementary spare area. Accordingly, different judgements between the file system and driver regarding the supplementary spare area may cause problems in the system control.--

The paragraph beginning on page 11, line 10 has been amended as follows:

110 -- Figs. 4A and 4B show assigning and expanding a supplementary spare area in a disc with a primary spare area as shown in Fig. 3;--

The paragraph beginning on page 12, line 1 has been amended as follows:

111 -- Generally, the present invention resets the location information of the supplementary spare area registered in the SDL block when an optical recording medium is formatted. Thus, the judgments of the file system and the driver would match each other with respect to the supplementary spare area. Fig. 6 is a flow diagram showing the operation of a driver when formatting the optical recording medium according to an embodiment of the present invention.--

The paragraph beginning on page 12, line 8 has been amended as follows:

112 Referring to Fig. 6, upon receiving a formatting command (step 601), a judgement is made if a supplementary spare area has been assigned (step 602). If

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the supplementary spare area assignment exists, the location information of the supplementary spare area recorded in the DMA is reset (step 603) to an initial or nullified state. To reset the location information of the supplementary spare area, any one of a variety of methods may be utilized. In one example, all the location information values of the supplementary spare area may be converted to the lowest value (for example, 00h) or the highest value (for example, FFh), nullifying any previously stored address information. In another example, the location information may be converted into a specific code value according to a predetermined agreement. That is, the location information value may be converted to a value which would allow the file system to recognize that the location information of the supplementary spare area has been reset when the file system receives the DMA information from the driver.--

The paragraph beginning on page 13, line 2 has been amended as follows:

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-- After resetting the location information of the supplementary spare area in step 603 or if a supplementary spare area has not been assigned as determined in step 602, a judgement is made whether the formatting is with certification (step 604). If the formatting is with certification, all sectors, including the sectors registered in the PDL and the SDL, are certified as shown in Fig. 5A (step 605). Thus, sectors judged to have defects are registered in the new PDL and the old SDL and G₁ and G₂ list are disposed. On the other hand, if the formatting is judged to be without certification, all sectors registered in the SDL are registered in the new PDL

X13 without change as shown in Fig. 5B (step 606). In both cases of formatting (with or without certification), the effect is registering defective sectors previously registered in the old SDL to the new PDL by the formatting process.--

The paragraph beginning on page 13, line 13 has been amended as follows:

X14 -- Upon completion of formatting as described above, the sectors of the supplementary spare area corresponding to the defective sectors registered on the new PDL slip into and become a part of the user area to maintain the initial data recording capacity. At this time, recognizing that a formatting has been performed, the file system disposes the information of the supplementary spare area. Accordingly, the information of the supplementary spare area is disposed from both the driver and the file system after the formatting.--

The paragraph beginning on page 14, line 6 has been amended as follows:

X15 -- Thus, according to the optical recording medium and method of formatting the optical recording medium in the present invention, the location information of the supplementary spare area registered in the DMA is reset when the optical recording medium is formatted. This allows the judgements of the file system and the driver regarding the supplementary spare area to match each other, thereby leading to a consistent system control and maintenance of compatibility when the optical recording medium is transferred to different drivers.--